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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,166	02/15/2002	Ching-Kee Chien	SP01-042	1268
22928	7590	01/03/2005	EXAMINER	
CORNING INCORPORATED			BERMAN, SUSAN W	
SP-TI-3-1				
CORNING, NY 14831			ART UNIT	PAPER NUMBER

1711

DATE MAILED: 01/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/077,166	Applicant(s) CHIEN ET AL. 	
	Examiner Susan W Berman	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-101 is/are pending in the application.
- 4a) Of the above claim(s) 11-21, 23-44, 49-81 and 84-101 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 22, 45-48, 82 and 83 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-101 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/02, 9/02</u> . | 6) <input type="checkbox"/> Other: ____ |

Election/Restrictions

Applicant's election with traverse of Group I, Species 1, claims 1-10, 22, 45-48 and 82-83, in the reply filed on 09-24-2004 is acknowledged. The traversal is on the ground(s) that the proposed inventions are inexplicably intertwined and that the search required for one group of claims would require a search for the other groups of claims. This is not found persuasive with regard to the inventions of Group I and Group II because, as pointed out in the restriction requirement of record, the optical fiber can be manufactured by a materially different process. The search for an optical fiber and for a method for making an optical fiber are distinctly different, as indicated by the different classification and different subject matter and by the search for Group I not being required for Group II. This argument is not found persuasive with regard to the different species because applicant has not admitted on the record nor submitted evidence to show the various species are obvious variants of one another.

The requirement is still deemed proper and is therefore made FINAL.

Claims 24-34, 53-58, 64, 67-71, 75, 76, 78-81, 86-89, 96-101 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species of the elected invention, and will be considered upon allowance of a generic claim as provided by 37 CFR 1.141.

Claims 11-19, 23, 35-44, 59-64, 72-74, 77, 84, 85, 91-93 are provisionally withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, namely a coated optical fiber. See the rejection of claims 1-10, 22, 45-48 and 82-83 set forth herein below. It is not clear whether applicant is claiming a coating or a coating composition. The restriction requirement will be reconsidered upon resolution of this issue. Applicant is advised that claims to a coating composition are considered to be a different invention than claims to a coated optical fiber based on the relationship between an intermediate and a final product. Claims to a "coating" (i.e. cured composition) are considered to be in a combination-subcombination relationship with claims to a coated optical fiber.

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Claims 20-21, 65-66 and 94-95 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10, 22, 45-48, 82 and 83 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, in line 1, recites “optical fiber coating” and then defines a photopolymerizable composition. It is not clear from the claim language whether applicant intends to claim an optical “coating”, i.e a cured composition on an optical fiber, or to claim a coating composition for providing a coating on an optical fiber. If applicant intends to claim a coating on an optical fiber obtained by curing the compositions set forth, it should be so stated. If applicant intends to claim claim a coating composition for providing a coating on an optical fiber, it should be so stated. It is not clear what total weight, volume or other base the recitation “pph” in claim 1, 6, 7, 22 is based upon. See [0022]. If applicant intends the pph to be based on 100 parts by weight of the composition, it should be so stated.

Claim 2 sets forth wherein said “strength additive further comprise an organic strength additive and includes at least one element” from the group set forth. However, paragraph [0019] in the specification appears to be describing “said strength additive” containing a thiol group set forth in claim 1 as including at least one of the elements set forth and not an additional strength additive.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6, 45 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by

JP402008803 A. See the Abstract. J '803 discloses a photopolymerizable composition for coating an optical fiber comprising less than 0.3 wt. % mono- or multifunctional thiol and teaches that an acrylsilane can be incorporated as an adhesion promoter.

Claims 1-3, 5-7, 22, 45, 48 and 82 are rejected under 35 U.S.C. 102(b) as being anticipated by Shustack (5,146,531). Shustack discloses coating compositions for optical fibers comprising from 0.1 to 3.0 percent adhesion promoters of the total weight of components A-E. The adhesion promoters include mercapto-functional silanes such as mercaptoalkyl trialkoxy silane that chemically bind in during cure but do not slow down the cure speed. The adhesion promoters also include methacrylated silanes that bind in well with the system but tend to slow down the cure speed. Acid-functional non-silanes are also taught. See columns 10-11. Shustack also teaches adding mercapto compounds as the preferred chain transfer agents (column 11, line 67, to column 12, line 41. Thus Shustack discloses compositions comprising a methacrylated silane adhesion promoter and 0.1 to 10 wt percent of a mercapto compound as chain transfer agent that anticipate the instantly claimed compositions wherein the amount of mercapto compound used is less than or about 0.5 %.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP402008803

A. See the Abstract. The Abstract does not disclose a species of acrylsilane or the amount employed in the compositions. It would have been obvious to one skilled in the art at the time of the invention to employ methacryloxy-propyltrimethoxysilane in an amount less than 12 pph of the composition because methacryloxy-propyltrimethoxysilane is a well-known species of acrylsilane adhesion promoter.

Claims 1-5, 8, 22, and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szum et al (6,298,189) in view of CA 21077448. Szum et al '189 disclose coating compositions for optical fibers comprising silane coupling agents and a composite oligomer having glass coupling moieties but no thiol group. See column 5, line 59, to column 6, line 2, column 20, line 59, to column 22, line 5, column 25, lines 18-31, lines 41-50. Examples 2-2, 2-4, 4-1 disclose compositions comprising both oligomer and a mercaptopropyl trimethoxy silane. The difference from the invention as instantly claimed, is that Szum does not teach the amount of thiol functional silane to be used except for amounts close to 1 wt percent used in the Examples.

CA '448 teaches that enhancement of strength retention capabilities is achieved when a high quality interface is established between the coating layer and an optical transmission medium. The enhancement is obtained from a radiation curable ethylenically unsaturated composition and about 0.5 to about 5 weight percent of a specific adhesion promoter that is an alkoxy silane having an active hydrogen

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such as a mercaptyl hydrogen, such as gamma-mercaptopropyltrimethoxysilane, that allows Michael reaction with the ethylenically unsaturated substituent. See pages 6 and 9.

It would have been obvious to one skilled in the art to determine the amount of mercapto-functional silane compound to employ or to employ an amount of about 0.5 % in order to provide desired properties, such as strength retention, as taught by CA '448 in analogous art. One skilled in the art would have been motivated by a reasonable expectation of successfully providing an optical fiber coating having excellent ribbon stripping and adhesion behavior, as taught by Szum et al, in the absence of evidence to the contrary. Szum et al teach in the Examples that less than 1 wt.% of mercapto-functional silane can be used when the inventive oligomer is employed. CA '448 teaches that strength retention properties are enhanced by using a mercapto-functional silane in amounts of about 0.5 %.

Claims 1-8, 22, 45, 48 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,146,531). Shustack discloses coating compositions for optical fibers comprising from 0.1 to 3.0 percent adhesion promoters of the total weight of components A-E. The adhesion promoters include mercapto-functional silanes such as mercaptoalkyl trialkoxy silane that chemically bind in during cure but do not slow down the cure speed. The adhesion promoters also include methacrylated silanes that bind in well with the system but tend to slow down the cure speed. Acid-functional non-silanes are also taught. See columns 10-11. Shustack also teaches adding mercapto compounds as the preferred chain transfer agents (column 11, line 67, to column 12, line 41).

It would have been obvious to one skilled in the art to employ a mixture of methacrylated silane adhesion promoter and mercapto-functional silane adhesion promoter in the coating compositions disclosed by Shustack. Shustack provides motivation by teaching that the methacrylated compounds bind into the cured system better and that the mercapto compounds do not slow down the cure speed. One of

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ordinary skill in the art would have been motivated by an expectation of advantageously controlling the degree of binding in with the cured system and effecting the cure speed.

Claims 1-8, 22, 45, 48 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,146,531) in view of CA 2107448. Shustack discloses coating compositions for optical fibers comprising from 0.1 to 3.0 percent adhesion promoters of the total weight of components A-E. The adhesion promoters include mercapto-functional silanes such as mercaptoalkyl trialkoxy silane that chemically bind in during cure but do not slow down the cure speed. The adhesion promoters also include methacrylated silanes that bind in well with the system but tend to slow down the cure speed. Acid-functional non-silanes are also taught. See columns 10-11. Shustack also teaches adding mercapto compounds as the preferred chain transfer agents (column 11, line 67, to column 12, line 41).

CA '448 teaches that enhancement of strength retention capabilities is achieved when a high quality interface is established between the coating layer and an optical transmission medium. The enhancement is obtained from a radiation curable ethylenically unsaturated composition and about 0.5 to about 5 weight percent of a specific adhesion promoter that is an alkoxy silane having an active hydrogen such as a mercaptyl hydrogen, such as gamma-mercaptopropyltrimethoxysilane, that allows Michael reaction with the ethylenically unsaturated substituent. See pages 6 and 9.

It would have been obvious to one skilled in the art to employ a mixture of methacrylated silane adhesion promoter and mercapto-functional silane adhesion promoter in the coating compositions disclosed by Shustack. It would further have been obvious to one skilled in the art to determine the amount of mercapto-functional silane compound to employ or to employ an amount of about 0.5 % in order to provide desired properties, such as strength retention, as taught by CA '448 in analogous art. Shustack provides motivation by teaching that the methacrylated compounds bind into the cured system better and that the mercapto compounds do not slow down the cure speed, thus one of ordinary skill in the

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art would have been motivated by an expectation of advantageously controlling the degree of binding in with the cured system and effecting the cure speed. One skilled in the art would have been motivated by a reasonable expectation of successfully providing an optical fiber coating having excellent ribbon stripping and adhesion behavior, as taught by Szum et al, in the absence of evidence to the contrary. CA '448 provides additional motivation by teaching that strength retention properties are enhanced by using a mercapto-functional silane in amounts of about 0.5 %.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP402008803 A, as applied to claims 1, 6, 22, 45, 48 and 82 above, and further in view of Krongauz et al (6,265,476). J '803 discloses a photopolymerizable composition for coating an optical fiber comprising less than 0.3 wt. % mono- or multifunctional thiol and teaches that an acrylsilane can be incorporated as an adhesion promoter. Kongruaz et al disclose radiation curable compositions comprising an elongation promoter that also provides enhanced strength properties. See the Abstract, column 10, line 7, to column 12, line 29. It would have been obvious to one skilled in the art to employ any of the thiol compounds taught by Krongauz et al as the thiol compound in the compositions disclosed by J '803. One of ordinary skill in the art would have been motivated by a desire to take advantage of the high elongation and other improved strength properties taught by Krongauz et al in analogous compositions.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,146,531) alone or in view of CA 2107448, as applied to claims 1, 6-8, 22, 45, 48 and 82 above, and further in view of Krongauz et al (6,265,476). Kongruaz et al disclose radiation curable compositions comprising an elongation promoter that also provides enhanced strength properties. See the Abstract, column 10, line 7, to column 12, line 29. It would have been obvious to one skilled in the art to employ any of the thiol compounds taught by Krongauz et al as the thiol compound in the compositions disclosed by J '803. One

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of ordinary skill in the art would have been motivated by a desire to take advantage of the high elongation and other improved strength properties taught by Krongauz et al in analogous compositions.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szum et al (6,298,189) in view of CA 21077448, as applied to claims 1, 8, 22, and 45-48 above, and further in view of Krongauz et al (6,265,476). Krongauz et al disclose radiation curable compositions comprising an elongation promoter that also provides enhanced strength properties. See the Abstract, column 10, line 7, to column 12, line 29.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-10, 22, 45-48, 82 and 83 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,559,197. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of US '197 encompass compositions comprising at least one silane, such as bis(triethoxysilyl)benzene recited in claim 15, and a thiol compound, such as 3-mercaptopropyltrimethoxysilane recited in claim 6, and mixtures thereof in amounts less than 10 pph.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Szum et al (6,187,835) is cited as art of interest. Szum et al teach compositions comprising 0.1 to 5% by wt. adhesion promoters for coating optical fibers. Mercaptopropyltrimethoxy silane is a preferred silane adhesion promoter. See column 3, lines 64-67, column 10, lines 10-16, and Examples 2-4. Schuman (5,690,863) is cited as art of interest. Schuman teaches optical fiber coating compositions comprising one or more adhesion promoters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman
Primary Examiner
Art Unit 1711

SB
December 27, 2004